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# ARTICLE 34 AMENDMENTS

AMENDMENT

(Amendment under Art. 11)

To: Commissioner, Patent Office

(To: Mr. NOMURA Toru, Examiner in Patent Office )

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1. Identification of the International Application

PCT/JP03/00266

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4. Date of Amendment Directive

28<sup>th</sup> of October, 2003

25 5. Scope of Amendments

(1) Specification

(2) Claim

6. Contents of Amendments

(1) In line 24 on page 3 in the specification, "the thickness of each  
5 permanent magnet" is amended into "the thickness of each of the  
permanent magnets as a whole formed in an approximate bow shape".

(2) Claim 1 is amended according to the attached document.

7. List of attached documents

10 (1) Page 3 and 3/1 of the specification.

(2) Claim 1 on page 17.

density—becomes somewhat large, and the torque linearity cannot be improved.

The present invention is intended to solve the above described problems and has as an object the provision of a permanent magnet motor  
5 in which the cogging torque is lowered and the torque linearity is improved.

### DISCLOSURE OF THE INVENTION

In a first aspect of the invention, a permanent magnet motor includes: a stator having a stator coil; and a rotor, having a plurality of  
10 axially bored magnet slots, provided in an amount for the number of poles in the rotor iron core, permanent magnets being fixed into the magnet slots so that neighboring magnetic poles are opposites; wherein in the rotor, the outer peripheral shape of rotor magnetic-pole portions, formed along each magnetic-pole face on the outer peripheral side of the permanent magnets,  
15 is formed so that, in a circumferentially central portion thereof, the distance from the center of the rotor iron core is longest, and, at the inter-polar space between a first of the permanent magnets and a second of the permanent magnets, the distance from the center of the rotor iron core is shortest, and so that the outermost surface of rotor magnetic-pole portions forms an arc,  
20 each magnet slot, whose radially outer side approximately matches the arc, being bored in an approximate bow shape; and given that sheath thickness  $t_c$  formed by the outer-side surface of each permanent magnet and the outermost surface of each rotor magnetic-pole portion is approximately constant, and letting the thickness of each of the permanent magnets as a  
25 whole formed in an approximate bow shape be the magnet thickness  $t_m$ ,

then the relation  $tdtm \leq 0.25$  is satisfied.

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## CLAIMS

What is claimed is:

1. (Amended) A permanent magnet motor comprising:

5 a stator having a stator coil; and

a rotor, having a plurality of axially bored magnet slots, provided in an amount for the number of poles in the rotor iron core, permanent magnets being fixed into the magnet slots so that neighboring magnetic poles are opposites; wherein

10 in the rotor, the outer peripheral shape of rotor magnetic-pole portions, formed along each magnetic-pole face on the outer peripheral side of the permanent magnets; is formed so that, in a circumferentially central portion thereof, the distance from the center of the rotor iron core is longest, and, at the inter-polar space between a first of the permanent magnets and  
15 a second of the permanent magnets, the distance from the center of the rotor iron core is shortest, and so that the outermost surface of rotor magnetic-pole portions forms an arc, the radially outer side of each magnet slot substantially matching the arc, and being bored in an approximate bow shape; and

20 given that sheath thickness  $t_c$  formed by the outer-side surface of each permanent magnet and the outermost surface of each rotor magnetic-pole portion is substantially constant, and letting the thickness of each of the permanent magnets as a whole formed in an approximate bow shape be the magnet thickness  $t_m$ , then the relation  $t_c/t_m \leq 0.25$  is  
25 satisfied.